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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/613,624	07/03/2003	Takashi Mizuno	09792909-5653	4347

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EXAMINER	
DANG, TRUNG Q	

ART UNIT	PAPER NUMBER
2823	

DATE MAILED: 10/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/613,624	MIZUNO ET AL.	
	Examiner	Art Unit	
	Trung Dang	2823	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 September 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *03 July 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art in view of Uemura et al. of record.

The admitted prior art teaches a method for manufacturing a semiconductor device in which, after a dicing process for cutting separate laser chips out of a wafer, each separated laser chips is mounted on a base (a package) (page 1 of the pending specification).

The admitted prior art differs from the amended claims in not disclosing that the assembly having the laser chips mounted on the base is irradiated with an energy beam having a shorter wavelength than an oscillation wavelength of the laser chip to remove adherent from the laser chip and the base.

Uemura et al. teach that when a semiconductor including laser chip is irradiated with an energy beam having a shorter wavelength than an oscillation wavelength of the laser chip, organic contaminants adhere on the laser chip is removed (paragraph [0021], paragraph [0070]). See paragraph [0031] for the group

III nitride compound semiconductor device includes a laser diode, i.e, the semiconductor chip is a laser chip. Also see paragraph and [0017] for the irradiating UV ray having wavelength of 172 nm, which is a shorter wavelength than an oscillation wavelength of the laser chip (Xe excimer laser lamp light generates UV ray having wavelength of 172 nm).

The subject matter as a whole would have been obvious to one of ordinary skill in the art to modify the teaching of the admitted prior art by irradiating the laser chip with UV ray as suggested by Uemura because the UV ray irradiating would remove contaminations adhere on the laser chip therefore preserving the long life as well as the light emission efficiency of the device. Note that when the laser chip mounted on the base is irradiated, the base is also irradiated.

For claim 2, it is obvious that semiconductor devices are sealed off from the surrounding environment after manufacture in order to protect and to put the devices in practical use. Such practice is within a common knowledge of one skilled in the art.

For claim 3, see paragraph [0030].

For claim 4, it is inherent that the laser chip of Uemura et al. would have an oscillation wavelength of 550 nm or less because, like the present invention, it is manufactured using nitride semiconductor layers.

For claim 5, excimer lamp in the reference is a Xe excimer laser lamp light that generates UV ray having wavelength of 172 nm.

As for claims 6, although Uemura et al. disclose an energy beam (UV ray) treatment method, Uemura et al. also disclose that conventional oxygen plasma treatment method is feasible but the oxygen plasma treatment requires controlling the treatment time exactly (paragraph [0021]). The subject matter as a whole would have been obvious to one of ordinary skill in the art to irradiate the base having a laser chip mounted thereon with oxygen plasma because it is recognized that irradiating the chip with oxygen plasma is also applicable but merely requires exact control of the irradiation time.

For claims 7-10, see the above references to claims 2-5, respectively.

Response to Arguments

3. Applicant's arguments with respect to claims 1-10 have been considered but are moot in view of the new ground(s) of rejection.

It is noted that in the Remarks, applicants argue that the problem of ensuring proper operation of the semiconductor laser device is not recognized in Uemura et al. The examiner disagrees. Uemura et al. do recognize the problems caused by organic contaminations in paragraphs [0005]-[0006], and accordingly teach the same solution as claimed. For the purpose of argument, assuming prior art did not recognize the same problem, it is, however, well settle that even if applicants discovered the cause of a problem, the solution would have been obvious

from the prior art which contained the same solution for a similar problem. In re Wiseman, 596 F.2d 1019, 1022, 201 USPQ 658, 661 (CCPA 1979).

Conclusion

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Trung Dang whose telephone number is 571-272-1857. The examiner can normally be reached on Mon-Friday 9:30am-6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on 571-272-1855. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Trung Dang
Primary Examiner
Art Unit 2823

10/20/04